

In the Claims:

1. (Currently amended.) A method of fracturing a subterranean formation of an oil or gas well to stimulate production of hydrocarbons, the method comprising the steps of:

(1) ~~injecting at high pressure into the formation a fracturing fluid at a pressure sufficient to form fractures within the formation, the fracturing fluid comprising an aqueous acid, a synthetic polymer, a metal crosslinking agent and lactic acid or a lactic acid salt thereof; wherein the amount of lactic acid or lactic acid salt present in the fracturing fluid is an amount sufficient to retard or prevent the crosslinking reaction of synthetic polymer and metal crosslinking agent until a temperature of at least 100° F. is reached in the subterranean formation; and~~

(2) ~~crosslinking the synthetic polymer and metal crosslinking agent at a temperature of at least 100° F for a time sufficient to render a crosslinked acid gel.~~

2. (Currently amended.) The method of Claim 1, wherein the amount of lactic acid or lactic acid salt present in the fracturing fluid is an amount sufficient to retard or prevent the crosslinking reaction of synthetic polymer and metal crosslinking agent until a temperature of at least 120° F. is reached in the subterranean formation ~~synthetic polymer and metal crosslinking agent are crosslinked at a temperature of at least 120° F.~~

3. (Currently amended.) The method of Claim 2, wherein the amount of lactic acid or lactic acid salt present in the fracturing fluid is an amount sufficient to retard or prevent the crosslinking reaction of synthetic polymer and metal crosslinking agent until a temperature of at least 140° F. is reached in the subterranean formation ~~synthetic polymer and metal crosslinking agent are crosslinked at a temperature of at least 140° F.~~

4. (Original.) The method of Claim 1, wherein the lactic acid is present at a concentration of from about 10 to about 1,000 pounds of lactic acid per 1,000 gallons of fracturing fluid.

5. (Original.) The method of Claim 4, wherein the lactic acid is present at a concentration less than about 80 pounds of lactic acid per 1,000 gallons of fracturing fluid.

6. (Original.) The method of Claim 5, wherein the lactic acid is present at a concentration less than about 25 pounds of lactic acid per 1,000 gallons of fracturing fluid.

7. (Original.) The method of Claim 1, wherein the aqueous acid is hydrochloric acid.

8. (Original.) The method of Claim 7, wherein the aqueous acid further includes formic acid, acetic acid or mixtures thereof.

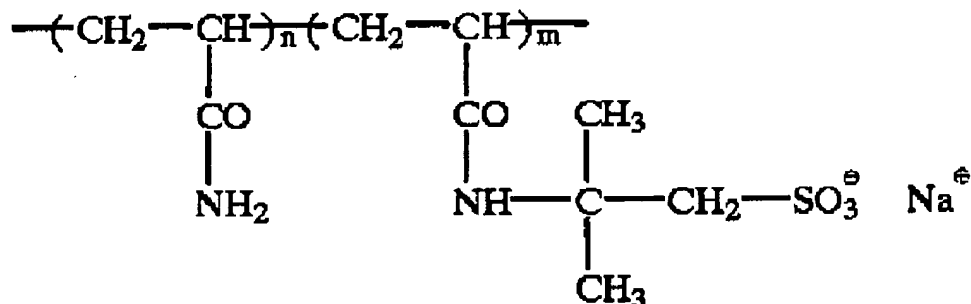
9. (Original.) The method of Claim 1, wherein the metal crosslinking agent contains either titanium, zirconium, aluminum, iron or antimony or a mixture thereof.

10. (Original.) The method of Claim 9, wherein the metal crosslinking agent contains aluminum and zirconium.

11. (Original.) The method of Claim 9, wherein the metal crosslinking agent is zirconium oxychloride, zirconium acetate, zirconium lactate, zirconium malate, zirconium citrate, titanium lactate, titanium malate, or titanium citrate or a combination thereof.

12. (Original.) The method of Claim 1, wherein the synthetic polymer is polyvinyl alcohol, polyacrylamide or a copolymer of acrylamide.

13. (Currently amended.) The method of Claim 12, wherein the synthetic polymer is a copolymer of the formula:



wherein m is 2 to 5 and n is 4 to 8.

14. (Original.) The method of Claim 1, wherein the fracturing fluid further comprises a gel breaker.

15. (Cancelled.)

16. (Currently amended.) The ~~fluid method~~ of Claim 45 ~~39~~, wherein the lactic acid is present at a concentration of from about 10 to about 1,000 pounds per 1,000 gallons of fracturing fluid.

17. (Currently amended.) The ~~fluid method~~ of Claim 16, wherein the lactic acid is present at a concentration less than about 80 pounds per 1,000 gallons of fracturing fluid.

18. (Currently amended.) The ~~fluid method~~ of Claim 17, wherein the lactic acid is present at a concentration less than about 50 pounds per 1,000 gallons of fracturing fluid.

19. (Currently amended.) The fluid method of Claim 15, wherein the aqueous acid is hydrochloric acid.

20. (Currently amended.) The fluid method of Claim 19, wherein the aqueous acid further includes formic acid, acetic acid or a mixture thereof.

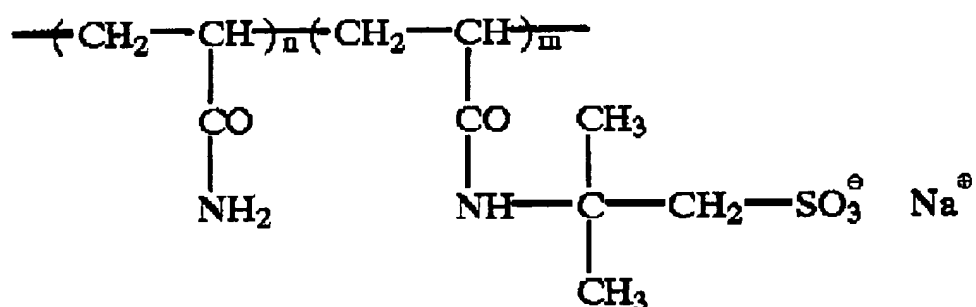
21. (Currently amended.) The fluid method of Claim 15, wherein the metal crosslinking agent contains either titanium, zirconium, aluminum, iron or antimony or a mixture thereof.

22. (Currently amended.) The fluid method of Claim 21, wherein the metal crosslinking agent contains aluminum and zirconium.

23. (Currently amended.) The fluid method of Claim 21, wherein the metal crosslinking agent is zirconium oxychloride, zirconium acetate, zirconium lactate, zirconium malate, zirconium citrate, titanium lactate, titanium malate, or titanium citrate or a combination thereof.

24. (Currently amended.) The fluid method of Claim 15, wherein the synthetic polymer is polyvinyl alcohol, polyacrylamide or a copolymer of acrylamide.

25. (Currently amended.) The fluid method of Claim 24, wherein the synthetic polymer is a copolymer of



wherein m is 2 to 5 and n is 4 to 8.

26. (Currently amended.) The fluid method of Claim 15, further comprising a gel breaker.

27. (Currently amended.) In a method of fracturing a subterranean formation of an oil or gas well to stimulate production of hydrocarbons by injecting at high pressure into the formation a fracturing fluid comprising an aqueous acid, a synthetic polymer, and a metal crosslinking agent, the improvement comprising using, ~~as a delaying agent, lactic acid or a salt~~

thereof—retarding or preventing crosslinking between the synthetic polymer and metal crosslinking agent at temperatures less than about 100° F. by inclusion of lactic acid or a lactic acid salt in the fracturing fluid.

28. (Original.) The method of Claim 27, wherein the lactic acid is present at a concentration of from about 10 to about 1,000 pounds of lactic acid per 1,000 gallons of fracturing fluid.

29. (Original.) The method of Claim 28, wherein the lactic acid is present at a concentration less than about 80 pounds per 1,000 gallons of fracturing fluid.

30. (Original.) The method of Claim 29, wherein the lactic acid is present at a concentration less than about 25 pounds per 1,000 gallons of fracturing fluid.

31. (Original.) The method of Claim 27, wherein the aqueous acid is hydrochloric acid.

32. (Original.) The method of Claim 31, wherein the aqueous acid further includes formic acid, acetic acid or mixture thereof.

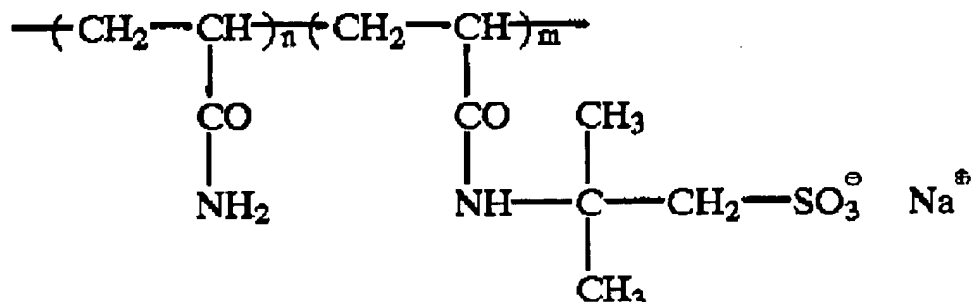
33. (Original.) The method of Claim 27, wherein the metal crosslinking agent contains either titanium, zirconium, aluminum, iron or antimony or a mixture thereof.

34. (Original.) The method of Claim 33, wherein the metal crosslinking agent contains aluminum and zirconium.

35. (Original.) The method of Claim 33, wherein the metal crosslinking agent is zirconium oxychloride, zirconium acetate, zirconium lactate, zirconium malate, zirconium citrate, titanium lactate, titanium malate, or titanium citrate or a combination thereof.

36. (Original.) The method of Claim 27, wherein the synthetic polymer is polyvinyl alcohol, polyacrylamide or a copolymer of acrylamide.

37. (Currently amended.) The method of Claim 36, wherein the synthetic polymer is a copolymer of the formula:



wherein m is 2 to 5 and n is 4 to 8.

38. (Currently amended.) The method of Claim 27, wherein the fracturing fluid further comprises a gel breaker.

39. (New.) A method of fracturing a subterranean carbonate formation of an oil or gas well to stimulate production of hydrocarbons, the method comprising injecting into the carbonate formation a fracturing fluid at a pressure sufficient to form fractures within the formation, the fracturing fluid comprising an aqueous acid, synthetic polymer, metallic crosslinking agent and lactic acid or a lactic acid salt and a gel breaker, wherein the amount of lactic acid or lactic acid salt in the fracturing fluid is an amount sufficient to retard or prevent crosslinking between the synthetic polymer and metal crosslinking agent at temperatures less than about 100° F.

40. (New.) The method of Claim 39, wherein the carbonate formation is limestone or dolomite.

41. (New.) The method of Claim 1, wherein the pH of the aqueous acid is about 0.0.

42. (New.) The method of Claim 1, wherein the subterranean formation is a carbonate formation.

43. (New.) The method of Claim 42, wherein the carbonate formation is limestone or dolomite.

44. (New.) The method of Claim 39, wherein the pH of the aqueous acid is about 0.0.

45. (New.) The method of Claim 1, wherein the polyacrylamide is an acrylamide polymer having less than 1% of the acrylamide groups in the form of carboxylate groups.

46. (New.) The method of Claim 1, wherein the synthetic polymer is an emulsion polymer.

47. (New.) The method of Claim 1, wherein the amount of acid in the fracturing fluid is between from about 3 to about 28 percent of the total weight percent of the fracturing fluid.

48. (New.) The method of Claim 47, wherein the amount of acid in the fracturing fluid is between from about 15 to about 20 percent of the total weight percent of the fracturing fluid.